

## DRAWINGS ATTACHED

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(54) IMPROVEMENTS IN OR RELATING TO TYRES FOR THE DRIVING  
 WHEELS OF AGRICULTURAL TRACTORS AND LIKE VEHICLES

(71) We, PNEUMATIQUES, CAOUTCHOUC MANUFACTURE ET PLASTIQUES KLEBER-COLOMBES, a French Body Corporate, of Place de Valmy, 92 Colombes, France, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to tyres for the driving wheels of agricultural tractors and like vehicles intended to move over loose or slippery ground.

Generally, tractor tyres are provided with bars on the tread pattern to impart good adhesion on loose or slippery ground, these bars having a very pronounced surface, inclined at approximately 45° with respect to the mid-circumferential plane and placed on both sides of the tread.

Unlike the relief portions of tyre tread patterns intended for other purposes, the bars as aforementioned are well spaced out around the circumference, the distance between any two successive bars being of the order of 4 to 7 times the thickness of the bars themselves. The bars then have between them generally smooth surfaces which form what may conveniently be defined as the "base configuration" of the tread.

Working on loose soil, the bars sink completely into the ground and the pull is transmitted primarily through the lateral faces behind the bars operating like paddles. Another part of the pull is transmitted by friction by the surfaces between the bars.

According to the present invention there is provided a tyre for a driving wheel of an agricultural tractor or like vehicle, having a tread pattern formed mainly of oblique transverse main bars spaced apart circumferentially, by at least three times the thickness of said bars, wherein the surfaces of the tread between said bars have relief portions to increase the adhesion of the surfaces on the ground and assist the self-cleaning of the tyre, said relief portions having a radial height measured from the generally smooth

"base configuration" as herein defined not exceeding one third the radial height of the main bars.

Advantageously the said base configuration relief portions are formed of bars, slabs or studs projecting from the tread surfaces between the main bars.

Conveniently the said relief portion bars are arranged transversely to the circumferential direction of the tyre.

Alternatively the said relief portion bars are approximately parallel to the main bars.

In accordance with one embodiment of the invention the said relief portion bars between any two main bars are transversely displaced relative to one another.

The relief portions come into contact with the ground only when the tyre rolls along loose ground into which the main bars may sink. Their presence increases the contact and the adhesion of the surfaces between the bars and the ground, and consequently reduces the slip for a given pull. Moreover, it has been proved surprisingly that this arrangement assists in the self-cleaning of the tyre by improving the expulsion of the earth which is taken up between the bars, in those areas where the tyres with ordinary bars have a strong tendency to clog up. It appears that this tendency to self-cleaning is due to a much larger movement of the surfaces between the bars at the places where the curve of the tyre changes, in front of and behind the contact surface of the tyre on the ground.

In order that the invention may be more clearly understood, reference will now be made to the accompanying drawings which show by way of example certain embodiments thereof and in which:—

Figures 1 and 2 show a perspective view and a cross-sectional view respectively of a tyre of a driving wheel for an agricultural tractor with small intermediate bars, and

Figure 3 shows a perspective view of a tractor tyre with another intermediate configuration.

Referring now to the drawings, in the

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case of Figures 1 and 2, the tyre shown has a tread pattern formed mainly from bars 1 of the usual type inclined at approximately 45° with respect to the mid-circumferential plane. There are two sets of bars 1 oppositely inclined to the mid-circumferential plane, each one extending over a little more than half the tread width, the bars of one set being circumferentially displaced with respect to the bars of the other set, so that their inner ends are imbricated.

The bars 1 have between them surfaces of the tread 2 which, as previously indicated, are usually referred to as the "base configuration" of the tread.

According to an embodiment of the invention, these surfaces 2 carry relief portions in the form of intermediate bars 3 transversely arranged with respect to the mid-circumferential plane and mutually displaced from an edge of the tread up to approximately the mid-circumferential line thereof, the intermediate bars 3 having a transverse length less than half the width of the tread. The lengths of the intermediate bars 3 may, furthermore, be unequal to the breadth of the group of intermediate bars formed between two main bars 1, i.e. the bars may as illustrated be mutually staggered transverse to the tyre mid-circumferential plane. Their circumferential spacing may be about equal to or double their width.

The projecting radial height of the intermediate bars 3 is much less than that of the main bars 1 and is not in excess of a third of this latter.

In the case of Figure 3, the intermediate bars 3 are inclined at about 45° to the mid-circumferential plane like the main bars 1. As shown they are not staggered and each have the same length.

The intermediate bars 3 may be replaced by other forms of relief portions such as

slabs or studs or such portions may be defined by slots or grooves.

#### WHAT WE CLAIM IS:—

1. A tyre for a driving wheel of an agricultural tractor or like vehicle having a tread pattern formed mainly of oblique transverse main bars spaced apart circumferentially, by at least three times the thickness of said bars, wherein the surfaces of the tread between said bars have relief portions to increase the adhesion of the surfaces on the ground and assist the self-cleaning of the tyre, said relief portions having a radial height measured from the generally smooth "base configuration" as herein defined not exceeding one third the radial height of the main bars.

2. A tyre as claimed in claim 1 wherein the said base configuration relief portions are formed of bars, slabs or studs projecting from the tread surfaces between the main bars.

3. A tyre as claimed in claim 2 wherein the said relief portion bars are arranged transversely to the circumferential direction of the tyre.

4. A tyre as claimed in claim 2 wherein the said relief portion bars are approximately parallel to the main bars.

5. A tyre as claimed in claim 2, 3 or 4 wherein the said relief portion bars between any two main bars are transversely displaced relative to one another.

6. A tyre substantially as hereinbefore described with reference to Figures 1 and 2 of the accompanying drawings.

7. A tyre substantially as hereinbefore described with reference to Figure 3 of the accompanying drawings.

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Sheet 1

Fig. 1

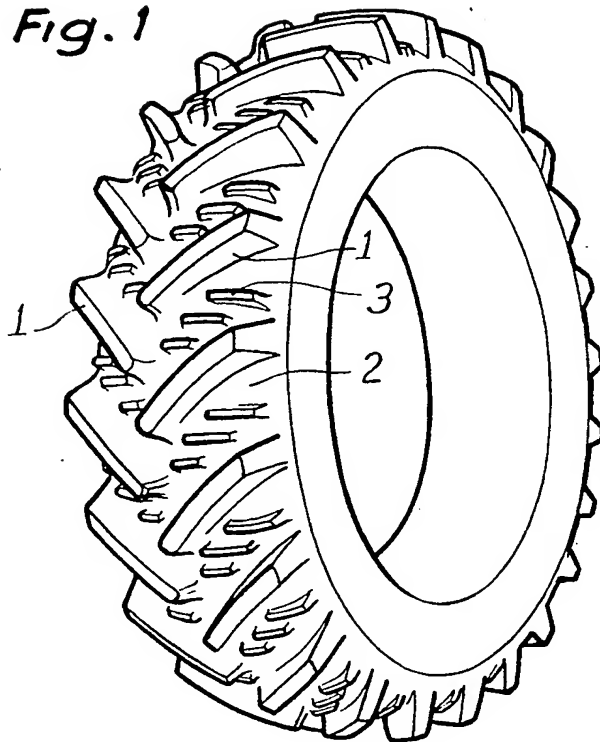
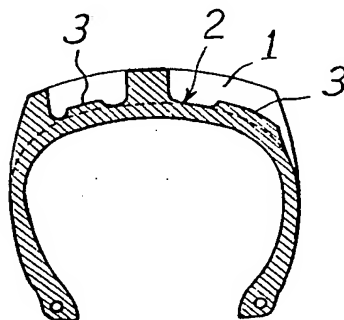


Fig. 2



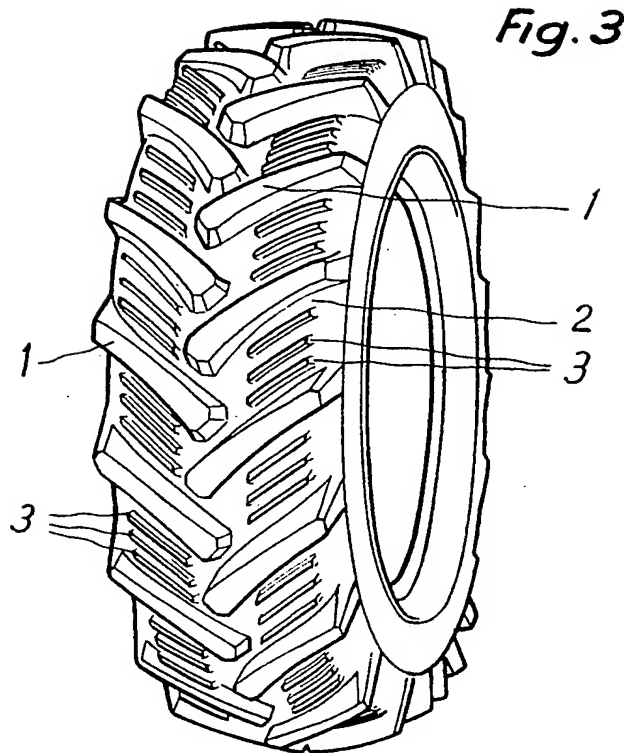
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